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Chapter 29. Outreach and Engagement

Outreach and engagement for water management in California is the use of tools and practices by water agencies that allow public groups and individuals to contribute to good water management outcomes by:

- Contributing insight to decision-makers on the best approaches for water management.
- Adopting water-wise practices.
- Supporting activities that result in beneficial water management outcomes, including the resource management strategies in this volume.
- Promoting collaboration and interdisciplinary approaches to solving problems. Resolving conflicts and addressing multiple interests and needs.
- Ensuring access to water management information and decision-making.

For more than a century, California has benefitted from exceptional technical knowledge to select and create California's significant water infrastructure. Water managers have relied on engineering expertise to achieve positive water outcomes and resolve problems. This approach worked well at meeting single purpose engineering goals, which supported a growing economy. Even so, some unintended consequences were eventually revealed. In the long run, some water management projects altered and degraded ecosystems and/or created social injustices as unintended byproducts. The water management profession remains primarily a technical discipline. Agency staff often have an engineering, economics, or law education. As a result, most people who manage water from day to day first think of managing the physical system, and later think of engaging the public as a way to solve problems or develop policies and programs.

Over time, as the demands on water management systems have increased and understanding of the complexity of the water systems has grown, the need for engineers and technical experts to engage others in achieving optimum results has become more apparent. New respect for the complexity of the ecosystems that water projects draw from brought the realization that water managers need access to additional kinds of expertise. Potential sources of expertise range from the close local knowledge of long-time residents of the area being changed by a water project (such as oral histories from local farms, or recollections of historic streams, wells, and springs) to university scientists in disciplines (such as ecology) that have not always participated in water development and management. In addition, water managers are now developing new sophistication about the ways they can serve their communities. This goes beyond the traditional engineering approaches by bringing in expertise from other disciplines, like economics, public health, or land use planning.

In the past few decades, citizens were given new legal tools that allow them to block water management projects that counter their environmental interests. Both the California Environmental Quality Act (CEQA) and the Clean Water Act have citizen suit provisions. Through the referendum process, voters passed Proposition 218 in 1996, which gives ratepayers a way to protest rate increases. Since the 2000s, increasing Internet use and the advent of social media has made organizing people and transferring information easier than ever. With these broad societal changes, water managers have found that a traditional engineering approach developed without consulting the public can suddenly become a focus of negative attention as interest groups draw attention to aspects of a project, program, or policy they don't like. A way to avoid project-derailing protests or lawsuits is to use community outreach and engagement

to develop projects that address multiple interests from the project’s outset and get community buy-in for the goals of the project. Collaborative development of new programs or policies may clarify or make explicit short- and long-term community interests, and ways to meet both or make trade-offs.

Update 2009 emphasized the need for outreach and engagement (see Box 29-1). This direction has been confirmed by the Legislature and the Executive Branch through requirements for an open and transparent decision-making and access to public records, specific instructions to convene advisory committees and conduct public outreach, and legal requirements for notification and hearings on key topics, such as prescribed in the California Environmental Quality Act. At the federal level, the National Pollutant Discharge Elimination System (NPDES) has regulatory requirements for education and outreach about non-point source pollution. The U.S. Environmental Protection Agency (EPA) states,

“It takes individual behavior change and proper practices to control such pollution. Therefore, it is important to make the public sufficiently aware and concerned about the significance of their behavior for stormwater pollution, through information and education, that they change improper behaviors.

Phase II MS4s [municipal separate stormwater sewer systems] are required to educate their community on the pollution potential of common activities, and increase awareness of the direct links between land activities, rainfall-runoff, storm drains, and their local water resources. Most importantly the requirement is to give the public clear guidance on steps and specific actions that they can take to reduce their stormwater pollution-potential.”

PLACEHOLDER Box 29-1 Recommendation 9 from Update 2009, Volume 1, Chapter 2

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

In addition to reaching the broader public, outreach and engagement can also target specific fields or professionals. The California Dairy Quality Assurance Program and the UC Cooperative Extension conduct outreach and education on the Central Valley’s General Order for Existing Milk Cow Dairies. The Central Valley Water Quality Control Board attributes the successful implementation of the order as partly due to the education program (see <http://cdrf.org/home/checkoff-investments/cdqap/>). Another program that is successful is the Ranch Water Quality Planning Short Course, which promotes the California Rangeland Water Quality Management Plan (State Water Quality Control Board 1995)(see http://www.waterboards.ca.gov/publications_forms/publications/general/docs/ca_rangeland_wqmgmt_plan_july1995.pdf).

In the San Francisco Bay Area, a program was used to implement a pathogen total maximum daily load (TMDL) on Tomales Bay where the impairment was at least partially due to grazing activities. An updated assessment of the program is on the San Francisco Bay Water Board’s Web site: http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/tomalesbaypathogenstmld.shtml.

The overall goal of water education is to develop more knowledgeable citizens who can participate in public discussion effectively and debate water issues. Good contextual understanding improves people’s

ability to examine and evaluate both the information that is presented and the information that is not presented. With a basic understanding of water, residents respond to specific and technical issues, such as the need to develop water supplies or wastewater treatment facilities, the costs and benefits of conservation, the dangers associated with leaking contaminants, the risks posed by poor water quality, and the costs and benefits of river restoration or flood control. With education and information, people can form their opinions based on data and information and make informed choices about supporting a water management program.

The degree of engagement and methods used are tied to the goals of the effort and the individuals involved. Outreach and engagement efforts may range from informing and educating to empowering, and the tools used mirror the goals of engagement. The International Association of Public Participation (IAP2) provides a broadly accepted framework on the levels of engagement as shown in Table 29-1.

PLACEHOLDER Table 29-1 Levels of Outreach and Engagement

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

The EPA and others have also developed agency-specific frameworks and these are widely used by public participation professionals. Similar frameworks and tools exist for water educators and public relations professionals.

The characteristics of a successful outreach and engagement strategy are:

- Relevant — contributes to the missions, goals, and objectives of partner organizations.
- Focused — establishes goals that are measurable, achievable, and targeted toward improving social, economic, environmental, or civic conditions.
- Scale-appropriate — creates designs at local, state, multi-state, or national scales that effectively address the program's focus.
- Innovative — integrates research findings and collegial knowledge and experience.
- Collaborative — cultivates and nurtures authentic and appropriately diverse partnerships.
- Integrated or incorporated research-based knowledge and methods — brings together the relevant components of the knowledge system (research, education, and application) around the problem or issue at stake.
- Adaptive — develops and implements continuous feedback and improvement strategies that include strong program planning and evaluation components, and exchanges information about processes, outputs, and outcomes with colleagues at local, state, multi-state, and national levels.
- Visible — interprets processes, outputs, and outcomes in a format that is understandable and accessible to partners and decision-makers.
- Effective — achieves outcomes that meet intended and unanticipated program objectives.
- Sustainable — develops and implements mechanisms to sustain the production of impacts over time, as appropriate to the duration and priority of a public need.
- Measurable — creates a difference that can be tracked- and measured.

Public relations professionals help refine important messages about water so the messages are useful to a broad audience. These professionals also assist in preparing informational materials and placing promotional messages on key topics using all forms of traditional and social media. Another role is to assist with critical outreach on topics such as flood risk notifications to people who live in areas next to

1 substandard levees. These professionals also routinely provide information on topics related to the need
2 for investment in water systems.

3 Non-profit organizations can connect water managers to specific communities within the broader public.
4 California has many diverse cultural communities; some of them are also disadvantaged. Directly
5 addressing and connecting with people within these cultures may require different skills than addressing
6 the general public. Such communities may have its own media or special emphases that are not widely
7 known outside these communities. Some professionals at non-profits or within water agencies have
8 focused on developing connections within a cultural community and learned how to craft messages and
9 build processes that will bring members of a culturally distinct group into water management decisions.

10 Outreach and engagement professionals use opinion polling and academic research to learn more about
11 what is important to key audiences and to identify the best practices for serving those audiences and
12 stakeholders. Opinion polling can measure whether outreach campaigns were able to change beliefs or
13 behaviors by polling the public before and after the campaign, or to determine what influences water
14 consumption behavior (such as drought features in the media/news). Water educators also provide
15 continuing education for water professionals in formal educational settings and through seminars,
16 conferences, and events. Academic researchers study water conflicts to identify the sources of conflicts
17 and underlying attitudes, and evaluate whether processes undertaken to reduce conflict are effective.

18 There has been significant success using outreach and engagement to ask individuals to change simple
19 habits, such as turning off the water when brushing teeth, installing more efficient shower heads, or
20 altering lawn watering practices. Outreach and engagement has also been essential in creating a better
21 understanding of flood risk in California, the importance of not dumping contaminants down storm
22 drains, and the need to maintain and invest in water systems. With all its success, outreach and
23 engagement could be used more broadly, delivered more efficiently, target and reach key audiences
24 better, and support Californians' understanding of critical water issues better. For example, the general
25 public has a limited understanding about the watersheds they live in, where the water they use comes
26 from and where it goes when they have finished with it, and the degree of their exposure to flood risk.
27 Likewise, while managers may know how water in their service area is delivered in the aggregate, they
28 may have a poor sense of how their constituents perceive water, what constituents' topmost water use
29 priorities are, how much individual willingness to pay for water exists, what the level of individual
30 preparation for water emergencies is, or many other facets of personal water use.

31 Outreach and engagement has contributed to broader use of cross-disciplinary groups to resolve water
32 issues and has been the foundation of some significant water policy decisions as multiple interests have
33 worked collaboratively to solve problems. Integrated regional water management (IRWM) is now the
34 policy direction of the State. To qualify for grants, regional water managers must coalesce with managers
35 in related fields (such as supply-oriented districts with wastewater treatment districts) and local citizen
36 groups. As they form new ways of working together to write plans, implement grant projects, and raise
37 matching funds, they have had to use more collaboration techniques than before. Grant funding has been
38 available for the planning stage, which also develops collaboration skills and builds new capacity in water
39 management personnel. A new emphasis on regional management also creates new demands for
40 engagement that is tailored to local needs and practices.

Potential Benefits

Public outreach and engagement produces two broad types of benefits: instrumental, outcome oriented (such as designing a program that satisfies multiple criteria), or intrinsic, process oriented (such as building trust between participants). There are two ways that public involvement leads to instrumental outcomes. First, public involvement results in a citizenry who is more understanding and appreciative of the issue, and therefore makes more informed decisions. Second, public involvement results in an agency that makes better decisions as a result of including public knowledge. In addition to instrumental outcomes, public involvement provides many intrinsic benefits, such as enhanced community capital.

Public Involvement

A single regulatory agency or municipal office working alone cannot be as effective in achieving optimized water management unless it has the participation, partnership, and combined efforts of other groups in the community all working toward the same goal. The point of public involvement is to build on community capital — the connections and wealth of knowledge of interested citizens and groups — to help spread the message on water goals and actions to manage, restore, and protect water resources.

Public involvement also includes facilitating opportunities for direct action, educational, and volunteer programs such as riparian planting days, volunteer monitoring programs, storm drain marking, or stream-cleanup programs. Groups, such as watershed groups and conservation corps teams who want to participate in promoting environmental causes, should be encouraged and offered opportunities to participate in water stewardship. Public involvement can promote other goals, such as achieving a water-oriented public health campaign, like mosquito breeding prevention (see Box 29-2).

PLACEHOLDER Box 29-2 Mosquito Control

[Any draft tables, figures, and boxes that accompany this text for the public review draft are included at the end of the chapter.]

Outreach and engagement starts to build a platform for a more sustainable future by helping people take individual and collective action that supports more sustainable water outcomes. Children can participate as well, via class curricula built around stream monitoring and cleanup. In a diverse population, such as California's, it is important to reach out to the various populations and to invite them to participate in their own language(s). Although that seems like a given, agencies tend to be mono-lingual. There are many populations that speak predominately in their native languages. Such groups should be addressed in a language that is understandable to them.

Collaborative Policy Making

Much research exists on the benefits of outreach and engagement and the methods it incorporates. While the time involved in engaging others may seem to slow down projects and programs at the beginning, evaluations have revealed that well-delivered processes reduce the ultimate time to implement desired goals, reduce litigation, and significantly reduce unintended consequences of water policy decisions. In 2011, researchers conducted a study to determine whether citizen participation enhances performance of public programs and attainment of organizational goals, which was defined as increased efficiency and effectiveness. Researchers concluded that, "On average, greater citizen engagement is strongly and significantly related to better performance of public agencies." Such research is significant as it supports

continued refinement and use of outreach practices. Evolving research on developing culturally appropriate outreach will also contribute better to reaching communities in need of water information.

Collaborative policy-making or project selection can have additional benefits. Having stakeholders involved through researching options and selecting a project can create buy-in from the people who will pay for the project. Their participation may help an agency pick an appropriate level of technology and resources for the end users, and create a body of people who are looking forward to seeing a policy put in place or a project completed. Outreach in the form of collaborative policy-making results in improved decision-making as agencies learn more about what is of concern to stakeholders and the full requirements of any particular watershed or system is revealed.

In the absence of a concerted outreach effort or collaborative policy-making, research and experience suggest that community members' opinions of water issues may be influenced by inaccurate perceptions of project risks or benefits, whether the project is viewed as consistent with the community's long-term goals, social factors, such as the degree of trust placed in the project team and government agencies, and the perceived equity in the process for developing a project. Media coverage, word-of-mouth, and information sources, such as blogs and other electronic media, often influence how individuals form opinions. Perceptions that may seem exaggerated from a technical point of view must be taken seriously. Perceived risks are no less real for purposes of implementing a public outreach program. If these perceptions and concerns are not addressed by water managers, they can rapidly transform into public opposition.

Youth Education

Research indicates that public education on water use has a significant return on investment as children may leverage activities at home and the behavior of adults with whom they interact. This shift in thinking will be increasingly important as California's growing population and increasing water demands come up against a finite water supply. A population that has been educated since childhood about the sources and uses of water in California and where their own water comes from will be more willing to change their behavior during droughts or stay prepared for floods. Some recommended youth education goals are:

- More participation in conservation programs.
- More equitable and just usage and distribution of water, including environmental uses.
- Help with climate change adaptation and resilience.
- More aesthetic appreciation of water.

In 2003, then-Assemblywoman Fran Pavley authored legislation that required development of an environment-based curriculum to be offered to all California public schools. The bill (AB 1548, Statutes of 2003) was sponsored by Heal the Bay, a nonprofit organization, and was signed into law by Governor Gray Davis. The program came to be known as the Education and the Environment Initiative (EEI) (see <http://www.californiaeei.org/History/default.htm>).

The curriculum took several years to develop and was approved by the State Board of Education in 2010 (see <http://environment.about.com/b/2010/02/20/california-approves-new-environmental-curriculum-for-k-12-students.htm>). It addresses 85 different aspects of the environment. Fifth grade is predominately focused on water resources. In 8th grade, one unit is Liquid Gold: California's Water (see <http://www.calepa.ca.gov/Education/EEI/documents/ExLiteracy.pdf>). This unit teaches students how

water is distributed and managed as a natural resource. It examines the importance of water to society, and specifically looks at the challenges California faces in balancing available water supply with societal demands. The section considers the imbalance between water supply and demand in California and examines the spectrum of considerations involved in decisions regarding California's water supplies. The final lesson considers the scope and potential environmental effects of water resource policies and the role of scientific knowledge in the development of the State's water policies.

Climate Change

Climate change can be a polarizing topic resulting in mixed messages and confusion. Even the term "climate change" can deter some people from discussing the problems that climate change can bring and from investigating potential solutions to mitigate and prepare for these environmental changes. In addition, many people still tend to view climate change impacts and solutions as global rather than local. Regardless of whether people believe the cause of climate change is anthropogenic or that climate change is not a local issue, California's water resources are being impacted by changes in climate. Sea levels are rising, snowpack is decreasing, and water temperatures are increasing. These changes affect the ability of the State to ensure reliable water supplies and water quality, manage floods, and protect ecosystem functions and critical habitats. California's watersheds are vulnerable to climate change. Communicating about climate change is necessary for making local land use choices, water resource planning, and hazard mitigation approaches.

Adaptation and Mitigation

Outreach and engagement are critical components to adapting to climate change. This outreach and engagement resource management strategy can improve communication with the public, governmental agencies, industry and businesses, and non-profit organizations about California's water resources susceptibility to climate change. Public engagement helps educate and build commitment and consensus among decision-makers and community members. Developing a consistent message about the state's vulnerabilities to climate change is crucial. Consistent messaging across media platforms reaches a wide audience. A Web site that addresses water management issues, highlights emergencies, and provides guidance, social media, alerts, webinars, and town hall meetings can be effective. An outreach and education program also should highlight the multiple benefits that can result from implementing a variety of water management strategies that complement adaptation strategies and should build on existing relationships with local communities. However, it is important that communication is not one-sided. Agencies should solicit input and provide feedback. Communities need to develop and own their choices and have a vested interest in their water resources decisions. Framing the issues in terms of local impacts and solutions can strengthen communication. Adapting to the impacts of climate change will continue to be an ongoing process. Therefore, it will be critical to improve the accessibility of information, improve monitoring, work together across institutional and social boundaries, and leverage resources.

Mitigation is accomplished by reducing or offsetting greenhouse gas (GHG) emissions in an effort to lessen contributions to climate change. The Intergovernmental Panel on Climate Change (IPCC) relates anthropogenic GHG emissions to climate change (Intergovernmental Panel on Climate Change 2007). Educating the public about mitigating climate change and reducing communities' carbon footprint is necessary. The costs of adaptation are far greater than the costs to reduce emissions causing climate change. Offering locally relevant education of water managers to encourage climate change mitigation in planning will help them identify the best benefits for their community.

Public benefits of mitigating climate change at the community level can improve air quality, provide cleaner, more reliable water, and lower illness rates. Promoting these benefits will encourage public acceptance and investment in mitigation strategies. Teaching the public to understand the importance of lowering their GHG emissions through access to information, public awareness, and education will foster empowerment and ownership. Education has a central role in mitigating climate change. Instilling awareness at a young age will shape the attitudes and behaviors of the next generation. Developing a K-12 outreach program as part of regular curriculum can help disseminate knowledge effectively through the community.

Potential Costs

The costs of outreach and engagement campaigns are generally the costs of staff time. A large process or public outreach campaign may require fulltime trained staff to schedule meetings, prepare material, refine messaging, and rehearse presenters.

Another notable cost is the time involved. Researchers note that, “participation is time consuming and has the potential to slow down decision-making since the public needs to be informed and even educated first in order to meaningfully participate in administrative processes.” This can require an investment from all participants; members of the public may be donating their time. Paid advocates’ participation time is supported by their advocacy group. If agencies want to ensure that representatives from disadvantaged communities are involved, they may have to give them financial assistance for their travel and time. Large-scale projects may have to budget a significant amount to support participation. Large public information campaigns will require message refinement, producing materials, and buying media time. In general, the costs of doing significant, well-delivered outreach and education are small compared to the usual costs of building and maintaining water infrastructure.

Major Implementation Issues

Widespread Lack of Understanding of Water Management

A major challenge for outreach and engagement is the current lack of understanding about water management in general. Californians’ lack of understanding regarding their physical water system is significant. Although there is often a strong sense that water is scarce and important, even important enough to fight over, many stakeholders and the public do not have much understanding of the physical or governance system that delivers their water. Many, if not most Californians, do not know how water gets to them or the features of the water landscape around them. People do not know their water sources and consequently, they do not know how or why those sources should be protected. In a recent survey, 78% of Californians did not know what the Bay Delta is, despite its function as the hub of California’s two major water projects.

In addition, people are busy with their lives and the world is full of interesting and complex issues. People may make a considered choice not to engage in water management issues. Some integrated regional water management groups report that when they sought citizen engagement, one response was that citizens pay their water districts to evaluate the options and make choices for them.

Complex Governance Structure

At a local level, few people are able name their particular water sources or their district's board members or managers. California's water rights structure is very difficult to understand and apply to individual situations. As people become interested in water policy, they report that the State-level governance structure is bewilderingly complicated, with multiple agencies portioning different pieces of water management. Because the public is disengaged from these systems, it does not know how to get involved in public policy-making or discussions. Stakeholders that are not professional issue advocates want to be involved, but do not know enough about how agencies work to participate in a meaningful way. Often, these stakeholders say they do not even know what questions to ask. They may attend meetings only to find that the topic is related, but the agenda is narrowly focused on a specific topic that they do not have the background to understand. On the other side, there is also a need for State employees to work with interested stakeholders by providing useful information and considering the public's comments. Because California's water governance is so complex, even water managers and policy-makers have limited expertise. Tribes report that State governing bodies themselves do not understand tribal water rights.

The Public Underestimates Risk

Because people are largely unaware of their local watershed and water delivery systems, they may underestimate the level of risk they face (from many potential water problems, such as flood, interrupted service, water quality threats). The risks posed by water management problems are not familiar to the public. The public may have no reason to research these risks and may choose to live in vulnerable rural water systems without understanding that their water source is variable or that they have bought into under-maintained water systems. They may choose to live on floodplains without understanding of what flood risk involves, or with the erroneous assumption that the local levees absorb all flood risk. If they have never received notice of this risk, or were only told about the risk in technical language that does not resonate with them, they can become angered when the risk turns into a reality that they are unprepared for, or when told about the costs of addressing the risk. Alerting homeowners about risk takes extensive public outreach campaigns.

Another reason the public may not know about the water management risks or issues that affect them is that their water district may consider the job is well done if the risk is averted without the public ever noticing. If a water district swiftly and professionally repairs a leaking pipe before it causes a sinkhole, it has done its job well, but the public may never become aware that that pipe is reaching the end of its design life and needs replacement soon. They may be surprised by the issue, because the district has been managing the warning signs so well that the risk is invisible to the public.

Diverse Communities Require Diverse Outreach

Another significant challenge relates to the varied cultural and geographic diversity of the state's residents. Outreach and engagement tools should not be limited by an assumption that a campaign that reaches the mainstream culture would also reach other diverse cultures equally well. Many current outreach methods do not address these more diverse needs. Much progress is being made in this area with the use of pilot projects and other innovative programs, but more is needed.

Water Managers May Not Want to Use Outreach and Engagement

Some agencies and decision-makers may not have experienced receiving good value from engagement or outreach. They may underestimate the importance of the tool and the need to build it into the overall project or policy approach, rather than add it on later because of public outcry. More and more agencies are gaining a better understanding of the value of outreach and engagement. However, due to shrinking resources and frequent crushing timeframes for resolving urgent issues, outreach and engagement is not always a priority for limited agency staff to spend their limited time and capacity. Outreach and engagement may present up-front costs that do not offer immediate or tangible benefits. Additionally, water managers may perceive outreach or collaboration as surfacing controversy and they do not want to be involved with any of it. Finally, people who are assigned to conduct outreach and engagement are not necessarily professionals in that discipline. They may be technical staff within the agency who have not been trained in communication skills, or who are not comfortable facilitating public meetings. Public speaking or leading groups intimidates many people, including some who are assigned to lead outreach on a project or policy.

A common format of public meetings is a formalized process that does not create good dialogue. It has been common for public meetings to be centered on a technical presentation with limited time for questions, have procedural rules that stifle participation, or are public hearings that are very contentious. Both the hosts and the attendees can find these meetings dull or frustrating. If these types of meetings are the only public meetings both groups are familiar with and they believe public meetings must be held in this manner, it is not surprising that neither group wants to commit time to a series of stakeholder meetings.

In some cases, it would be more practical for academic institutions or non-governmental organizations to assume the role of delivering these services rather than water (including flood) agencies. This type of approach is particularly effective when significant resources and relationships already reside in potential partner organizations.

Poorly Designed Public Processes

If a process for collaboration and engagement is poorly designed or inauthentic, it can backfire. A poorly designed or moderated public process can be hijacked by professional advocates such that the result does not adequately reflect the concerns of all involved. It can create stakeholder fatigue, meaning stakeholders tire of attending too many meetings.

A Flood of Outreach and Engagement Materials

In some cases, there is too much information in outreach and engagement tools without proper guidance to the best applications of the tools and/or the validity of the approaches as a best practice. For example, a number of efforts have resulted in success, but could have been delivered more effectively and efficiently. In other cases, selecting the wrong tools or application of tools incorrectly results in building cynicism and making future outreach even more difficult. This type of error has profound implications for issues where conflict resolution is required. Many different organizations have developed outreach materials and curricula. Searching and selecting among them can be daunting, as can choosing the right materials for the situation the water district or agency is encountering.

Well intentioned agencies and decision-makers, when looking at the wide variety of tools, are known to prescribe a tool to their outreach and engagement personnel that appears to work well from all the papers, books, and other materials they've researched, but these may or may not be the right tool for a particular effort. Without some well-organized or professionally evaluated assessment of information, selection of these methods by non-professionals can have negative results. Major public information campaigns may want to integrate messages among water service agencies.

Distrust of Government and Science

Public trust in government has dropped precipitously since the 1960s, when the last major water projects were built, from 73% of people trusting government to 26% of people trusting government. This drop in trust has come about for reasons mostly outside of water management, but has effects on outreach and engagement in all fields. Many citizens may start a public process by initially doubting the facts and science presented by the hosts. People have been exposed to "purchased science," which is science funded by an advocate that yields biased results according to what the advocate/funder prefers. The public would then question whether that particular science has been conducted to further an agenda, rather than having a neutral finding of causes and facts. Immigrant communities may have a distrust of government that began in their country of origin. In water management, stakeholders may believe that any examination of their water rights or groundwater levels threaten the continuation of their water use.

A current issue facing water managers is a small but vocal part of the population has increasingly strong beliefs about governance and water-related topics such as climate change. This active minority doubts or rejects the legitimacy of some planning efforts beyond local government and the science that supports decision-making. This level of skepticism makes crafting public policy difficult. As these types of groups have become more politically involved, they have disrupted public meetings and delayed planning efforts. Their mistrust of science requires evidence of fact finding beyond a level of certainty that satisfies most academics, scientists, and technical experts. New requirements for additional fact finding can take considerable time and money to develop. As long as this mistrust persists, outreach and engagement may be perceived and labeled as propaganda.

Victims of Success

An odd but real challenge is achieving success in outreach and engagement without also considering the consequences of success. During the 2006-2009 drought, some districts that did extensive water conservation public information campaigns were caught off-guard by a sharper drop in per capita water use than they were prepared for. Also, an economy in recession and five years of cooler weather reduced water demand. Some districts found that their rate structure required that people use water at their historical levels to cover the fixed costs of delivery infrastructure. When these districts conducted an effective water conservation public information campaign, constituents were not buying enough water to cover the districts' fixed costs. The districts were forced to increase their base rates, leading to the unpopular perception that people were being punished for conserving water. This created resentment and the perception that rates were being set in an arbitrary fashion for the benefit of the agency. In cases like this, water districts were not prepared for their public information campaigns to be successful and to change people's water use.

Currently, many outreach and engagement programs do not measure effectiveness possibly because it is difficult to do so. Often when budgets are tight, the first things eliminated are educational programs.

Consequently, there is a need to quantify the effectiveness of education and outreach that demonstrates the value of these programs. One of the tools most often used is conducting surveys before and after the intervention to measure the increase of awareness in the public. In addition to measuring public awareness, there is a need to measure behavior changes. One way to measure urban water conservation is to measure the overall reduction in water use, which can be used to calculate the value of water saved. For other messages, effectiveness monitoring could be more challenging. However, the importance of these messages supports the need to develop monitoring techniques.

Water Policy is Genuinely Complex

A final and difficult challenge is the often bewildering complexity involved in addressing water management issues. Creating or defining a clear public message, something that can be incorporated in a 30 second sound bite, is a challenge. A simple message doesn't truly represent the situation, but a broad audience may not have the time to appreciate a complex message. In this scenario, water managers may not understand the need to conduct outreach and engagement at multiple levels, at multiple times, and using multiple messages.

Recommendations

1. Project planning should include a section on what level of public engagement is appropriate.
2. The selected level of public engagement should receive appropriate resources.
3. Agencies providing grants should include requirements for authentic, well-designed public engagement.
4. Managers should take facilitation and collaboration training and offer it to their staff.
5. Professional conferences and other management venues should include outreach and engagement topics to give an opportunity to share best practices, leverage activities of their peers, and provide efficiencies.
6. Within regions, water managements should collaborate on outreach campaigns for message clarity and to utilize stakeholders' time better.
7. Managers should carefully calibrate the extent of the engagement to the policy being developed or the project being designed.

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Table 29-1 Levels of Outreach and Engagement

Level	Goal	Public Expectation	Tools
Inform, Educate	Provide information about problems, solutions, alternatives, opportunities, and solutions related to water in California.	Water managers will provide balanced and objective information to the public.	<ul style="list-style-type: none"> • Websites • Fact sheets • Open houses/town hall meetings • e-News • Newsletters/Alerts • Public libraries, designated (gov't) section/ provide webinar facilities in libraries
Consult	Obtain public feedback on analysis, alternatives, and/or decisions regarding water in California.	Water managers will provide information, listen, and acknowledge public concerns and aspirations, and provide feedback on how public input influenced the decision.	<ul style="list-style-type: none"> • Public comment • Focus groups • Surveys • Public meetings • Social media participation
Involve	Work with the public to ensure public concerns and aspirations are understood, and considered by water managers.	Water managers will work to ensure that public input informs alternatives and provide feedback on how public input influenced the decision.	<ul style="list-style-type: none"> • Workshops/town hall meetings • Deliberative polling • Social media/webinars
Collaborate	Partner with the public to develop alternatives and identify preferred solutions for water in California.	Water managers will ask for advice and ideas from the public, and will try to include public input when making decisions.	<ul style="list-style-type: none"> • Advisory committees • Caucuses • Include plan alternatives in EIR processes
Empower	Provide the public the opportunity to make decisions related to water in California.	Water managers will implement or support public decisions.	<ul style="list-style-type: none"> • Convene forums as requested, when possible • Support local and regional action

Box 29-1 Recommendation 9 from Update 2009, Volume 1, Chapter 2

9. California should increase public understanding and awareness of where water comes from as well as the value and importance of water, water quality, and water conservation to people, ecosystems, and California's economy.

Water is a limited resource and State government needs to do more to assist water agencies, local governments, and other partners, such as tribes and non-governmental organizations, by developing and disseminating information about the importance of water issues, including water supply, water quality, and ecosystem health. Despite experiencing significant droughts and floods, Californians are not sufficiently aware of the critical water issues confronting them. It is the responsibility of State government to help the public understand the importance of efficient water use, how to protect water quality, how their actions can benefit or harm the watersheds from which they receive their water, and the watersheds in which they live, play, and work.

DWR and other State agencies should make public outreach and education a priority and achieve efficient dissemination of information by forming partnerships with those experienced in water and resource education and media. Outreach should include high-quality, balanced water information including programs that are part of elementary school education. With such education, Californians will have a better understanding of where their water comes from, the value and importance of water, the challenges and opportunities to ensure the coequal goals of water supply, quality, and ecosystem health. The public will also have a better understanding of the benefits, costs, and impacts of the resource management strategies described in Volume 3, especially water conservation and water use efficiency, both of which must become a public ethic.

Box 29-2 Mosquito Control

Mosquito control is a good example of a problem that takes strong public involvement to address. Controlling mosquitoes is critical to maintaining both a high quality of life and protecting people from mosquito-transmitted (vectored) diseases such as West Nile virus. Since many water related uses and activities can contribute to mosquito breeding areas, a number of Best Management Practices (BMPs) have been developed by the California Department of Public Health and the Mosquito and Vector Control Association of California to promote mosquito control. Getting these BMPs out to the public and getting the public to follow them requires a public health campaign and widespread public involvement. These BMPs include water use activities in both urban and rural areas. The full list of BMPs is available at the following website:
<http://www.cdph.ca.gov/HealthInfo/discond/Documents/BMPforMosquitoControl07-12.pdf>